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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,320	01/14/2002	Peng Huang	45283.5	7761

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EXAMINER

TSANG FOSTER, SUSY N

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,320	HUANG ET AL.	
	Examiner	Art Unit	
	Susy N Tsang-Foster	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20031020</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS filed 20020227</u> . |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-12 in Paper No. 20031020 is acknowledged. Applicant cancelled claims 13-24 in the election response. Claims 1-12 are pending. Claims 1-12 are rejected for reasons below.

Information Disclosure Statement

2. The information disclosure statements filed on 2/27/2002 and on 10/20/2003 has been considered by the Examiner.

However, the following references have not been considered because their listing are not compliant with 37 CFR 1.98 and have been crossed out by the Examiner on the 1449 form:

- a) In the IDS filed on 2/27/2002, citation number 43 has been crossed out since it is a foreign reference and a statement of relevance or an English translation has not been provided for foreign patent document FR 1,513,898;
- b) In the IDS filed on 2/27/2002, citation number 60 has been crossed out since it is a foreign reference and statement of relevance or an English translation has not been provided for foreign patent document EP 0 424813 A1;
- c) In the IDS filed on 2/27/2002, citation number 61 has been crossed out since it does not list each experimental papers individually with the corresponding publisher, author (if any), title, relevant pages of the publication, date, and place of publication. Furthermore, it is unclear to the

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Examiner whether these experimental papers by Professor Ludwig Gauckler are actually publications;

d) In the IDS filed on 2/27/2002, citation number 62 has been crossed out since it does not list each the various articles presented by Dr. Virkar with the corresponding publisher, author (if any), title, relevant pages of the publication, date, and place of publication. It is also unclear what articles are meant by applicant. Furthermore, a copy of each publication to be considered has not been submitted by applicant; and

e) In the IDS filed on 2/27/2002, citation number 65 to Argiris et al. has been crossed out since it does not list the publisher, the relevant pages of the publication, date, and place of publication and a copy of the article has not been provided by applicant.

Specification

3. The abstract of the disclosure is objected to because the phrase “[a]n solid oxide” should be “[a] solid oxide”. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities:

In the Figure 1 caption, “of a anode” should be “of an anode”.

Appropriate correction is required.

Claim Objections

5. Claim 9 is objected to because of the following informalities:

In claim 9, the limitation “the anode forms part of an electrolyte or cathode supported solid oxide fuel cell” is confusing since it can be interpreted that the anode is part of the

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electrolyte which unclear. It is recommended to the applicant to rewrite the limitation as “the anode forms part of an electrolyte supported or cathode supported solid oxide fuel cell” in light of the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ghosh et al. (US 6,420,064 B1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C.

102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

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See col. 3, lines 55-67 (especially lines 65-67); col. 4, lines 1-37; col. 5, line 50 to col. 6, line 23; col. 6, lines 63-66; col. 7, line 10-13; col. 7, line 44 to col. 8, line 16 of the reference.

8. Claims 1, 2, 9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohara et al. (US 5,993,988).

Ohara et al. disclose a fuel electrode (anode) forming part of a solid oxide fuel cell (solid state electrochemical device) that is bonded to a dense electrolyte layer and comprising a porous three-dimensional solid phase that comprises electrocatalytic particles and ionic conducting particles where the mean size of the electrocatalytic particles is larger than the mean size of the ionic conducting particles (col. 2, lines 36-65; col. 5, lines 4-30; col. 6, lines 29-42; col. 11, lines 4-29; col. 12, lines 1-47 and Figure 5). The ionic conducting particles prevent the electrocatalytic particles from bonding or aggregating with each other (col. 11, lines 1-15). The proportion of the electrocatalytic material to the ionic conducting material is 80:20 to 70:30 in mol% (col. 9, lines 1-9). The fuel electrode is supported by a 0.5 mm thick electrolyte (col. 12, lines 14-28). The electrocatalytic particles can be nickel or noble metals such as platinum, palladium, and ruthenium (col. 6, lines 29-42). The ionic conducting particles in the anode can be yttria stabilized zirconia (YSZ) (col. 5, lines 19-30).

9. Claims 1-3, 9, and 12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by IPDL JPO Machine Translation for JP 10-021931 A.

See abstract; drawings 1 and 3 and paragraphs 17-24, 32, 35-38 of machine translation of the reference.

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10. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0439938 A1 and as evidenced by the Datasheet for INCO Type 287 Nickel Powder ([online]. INCO special products, 1999 [retrieved on 2004-03-21]. Retrieved from the Internet: <URL: http://www.incosp.com/pdf/sp_nickelType287_en.pdf>) and Schlichting et al. (“Thermal conductivity of dense and porous yttria-stabilized zirconia” in Journal of Materials Science vol. 36 (2001) pp. 3003-3010).

EP 0439938A1 discloses cermet anodes for solid oxide fuel cells where the metallic component can be Group VIII elements of the Periodic Table of elements such as palladium, platinum, cobalt, and nickel (page 3, lines 29-35). Although the examples in the reference are drawn to nickel, the invention is not limited to nickel (page 3, lines 34-35). The cermet anode is porous and contains sintered yttria stabilized zirconia and nickel (page 3, lines 47-52). A porous nickel is first formed onto the dense electrolyte of the solid oxide fuel cell (page 3, lines 36-58) followed by infiltrating the porous nickel layer with an aqueous zirconia suspension and sintering (page 4, lines 1-8). The nickel metal powder used is INCO Type 287 nickel powder (page 4, lines 34-40). The yttria stabilized zirconia powder used is TZ-8Y yttria stabilized zirconia powder from TOSOH (page 4, lines 44-47). The weight ratio zirconia to the nickel layer is greater than or equal to about 1.0 (page 7, lines 13-18).

The data sheet for INCO type 287 nickel powder shows that the average particle size of the nickel powder is 2.6 to 3.3 microns with an apparent density of 0.75 –0.95 g/cc (obtained from on 21 March 2004). The article by Schlichting et al. titled “Thermal conductivity of dense

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and porous yttria-stabilized zirconia" in Journal of Materials Science vol. 36 (2001) pp. 3003-3010, states that yttria stabilized zirconia from TOSOH with trademark TZ-8Y has an average particle diameter of 0.3 microns (page 3004). Thus, the metal in the cermet anode has an average particle size that is greater than the average particle size of the ionic conducting particles by about 10 times.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1 and 12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7 and 19 of U.S. Patent No. 6,420,064.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 7 and 19 of U.S. Patent No. 6,420,064 discloses all the limitations of claims 1 and 12 of the present application except explicitly claiming that the electrode of claims 7 and 19 is an anode. However, claims 7 and 19 recite an electrode which is defined to be either a cathode or anode in the patent specification and thus claims 7 and 19 encompasses and anticipates instant claims 1 and 12.

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Conclusion

13. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (571) 272-1293. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (571) 272-1292.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

st/ 

Susy Tsang-Foster
Primary Examiner
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